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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,818	01/15/2002	Joichi Nishimura	P/1250-217	4742

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EXAMINER

MOORE, KARLA A

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/047,818

Applicant(s)

NISHIMURA ET AL.

Examiner

Karla Moore

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1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities: Applicant refers to "said transfer robot" and recites a limitation "said transfer robot is operable to access each inspection unit from said gap space". Examiner believes that the limitation was meant to refer to "said transport robot" and has examined the claims assuming this to be the case. Appropriate correction and/or correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,942,013 to Akimoto.

4. Akimoto discloses an apparatus for processing a substrate in Figures 2 and 3, comprising: a) an indexer portion comprising a downside structure (20) comprising a transfer robot (21) for transferring a substrate from/to a carrier (C) capable to hold a plurality of substrates, and an upside structure (30) defined above said downside structure and comprising upside processing sections (46, 42, 38, 34) of different types horizontally separated from each other and operable to apply processing to said substrate; and b) a processing portion comprising an arrangement of processing units (61, 62, 63) for applying a series of processing to said substrate transferred from said transfer robot, and a transport robot (51) for transporting said substrate between said arrangement of processing units.

5. With respect to claim 2, said indexer portion and said processing portion are arranged in a first horizontal direction X (the prior art labels the direction as Y), said transfer robot is horizontally movable

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along a second horizontal direction (the prior art labels the direction as X), and said processing sections are arranged in said second horizontal direction Y (the prior art labels the direction as X).

6. With respect to claim 5, said upside processing sections comprise a first section (heating and cooling) for applying a first dry-type processing to said substrate, and a second section (an adhesion device) for applying a second dry-type processing to said substrate (column 4, rows 1-15).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto et al.

9. Akimoto discloses the invention substantially as claimed and as described above, including a first set of processing units (61, 62 and 63A) and second processing unit (63B) arranged at a higher level than said first set of processing units, said upside structure being substantially at a same level as said second set of processing units (see Figure 6).

10. However, Akimoto fails to teach a second unit as a set of units or multiple units.

11. The courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F. 2d 669, 124 USPQ 378 (CCPA 1960). In this case, the duplicating of parts would produce an obvious and expected result—increased throughput.

12. With respect to claim 4, in Akimoto, said transport robot is operable to access to not only said arrangement of processing units but also said upside processing sections (column 4, rows 45-51).

13. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto as applied to claims 1-2 and 5 above, and further in view of U.S. Patent No. 6,240,874 to Pike.

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14. Akimoto discloses the invention substantially as claimed and as described above. In addition to the above, with respect to claims 6 through 8, Akimoto further discloses the first section is a thermal section including a plurality of processing units and the plurality of processing units are arranged into at least one stack of thermal units and each stack of thermal units includes cooling units (on the lower rows thereof) to cool said substrate, and heating units stacked on said cooling units and each operable to heat said substrate (column 4, rows 1-15; see Figure 4).

15. However, Akimoto fails to disclose any of the processing sections in the upside processing portion comprising an optical section including an edge exposure unit.

16. Pike teaches integration of thermal units and an edge exposure unit for the purpose of increasing throughput (abstract).

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided any number of the thermal units of Akimoto with edge exposure capabilities in order to obtain an upside processing section comprising a first section capable of thermal processing and a second section capable of thermal and optical processing so as to increase the throughput as taught by Pike.

18. Claims 9-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,942,013 to Akimoto in view of U.S. Patent No. U.S. Patent No. 6,313,903 to Ogata.

19. Akimoto discloses the apparatus substantially as claimed and as described above, specifically locating processing chambers (an upside structure) above a transfer path for the purpose of obtaining a small floor area, which lessens the burden of the air conditioning facilities for the clean room (column 2, rows 7-12). Additionally, with respect to claims 10 and 11, a plane area of said upside structure projected onto a horizontal plane is included in a plane area of said downside structure projected onto a horizontal plane and said upside structure is provided in a location out of range in which said transfer robot moves for transferring substrate between said carrier and said processing portion. With respect to claim 12, said downside structure comprises a carrier stage (10) on which a plurality of carriers each containing a

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plurality of substrates are aligned and said upside structure is provided over an alignment of said plurality of substrates.

20. However, Akimoto fails to disclose the upside structure comprising an inspection station operable to inspect said substrate.

21. Ogata teaches locating an inspecting device to inspect a substrate on the top shelf of a plurality of units for the purpose of not using extra space, preventing the size of a coating and developing unit from becoming too large and effectively performing maintenance operations based on inspection results (Figure 4, 50; column 3, rows 47-50; column 8, rows 57-62). ^{FILM THICKNESS}

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an inspection station in the upside structure in Akimoto in order to not use extra space, prevent the size of the coating and developing unit from becoming large and to effectively perform maintenance operations based on inspection results as taught by Ogata.

23. With respect to claims 15, the inspecting portion is a resist thickness measurement unit (column 3, rows 47-51) in order to monitor operations of the coating and developing unit and perform maintenance operations as needed.

24. With respect to claim 16, the prior art fails to teach the inspection portion in the upside structure comprising a complex inspection unit for measuring thickness of resist formed on said substrate, line width of lines formed on said substrate and for measuring superposition of circuit patterns formed on said substrate, and a macro defect inspection unit for detecting a macro defect on said substrate.

25. ^{Ogata} ~~Sato et al.~~ teach using a number of inspecting units (column 4, rows 63 through column 5, row 25) for the purpose of separating acceptable substrates from unacceptable substrates and transferring an acceptable substrate quickly to the next stage (column 3, rows 36-40).

26. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a number of inspecting units in the prior art in order to separate acceptable substrates from unacceptable substrates and to transfer an acceptable substrate quickly to the next stage ^{Ogata} as taught by ~~Sato et al.~~

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27. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto and Ogata as applied to claims 9-12 and 15-16 above, and further in view of U.S. Patent No. 5,766,360 to Sato et al.

28. The prior art discloses the invention substantially as claimed and as described above. Akimoto further discloses the upside structure horizontally separated with each other across a gap space and a transport robot is operable to access each unit in the upside structure from said gap space.

29. However, the prior art fails to teach the inspection unit comprising a plurality of inspection units.

30. Sato et al. teach preparing a plurality of inspection units in an inspection chamber for the purpose of improving the throughput of inspections (column 5, rows 1-3).

31. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an inspection section comprising a plurality of inspection units in the prior art in order to improve the throughput of inspections as taught by Sato et al.

32. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto and Sato et al. as applied to claims 9-12 and 15-16 above, and further in view of U.S. Patent No. 6,439,822 to Kimura et al.

33. The prior art discloses the invention substantially as claimed and as described above.

34. However, the prior art fails to teach a clean air outlet provided under said inspection station to supply clean air to said downside structure.

35. Kimura et al. teach the use of an air cleaning mechanism FFU that can be disposed above the carrier holding section for the purpose of keeping the wafers W held in the carrier holding section together with the substrate carrier clean or to control the temperature thereof by clean air flow (Figure 13; column 11, rows 49-54).

36. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an air cleaning mechanism under the inspection station in order to keep the wafers and the carriers holding them clean or to control the temperature of the wafers and carriers as taught by Kimura et al.

Conclusion


37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
May 1, 2003


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